

## **REMARKS**

### **1. Information Disclosure Statement**

Applicants have identified an inadvertent error in the Information Disclosure Statement dated January 30, 2004. The Information Disclosure Statement inadvertently indicated that each item was cited in a communication from a foreign patent office in a counterpart foreign application. Applicants respectfully wish to clarify that none of the items were cited in a communication from a foreign patent office in a counterpart foreign application.

### **2. Typographical Errors**

Claims 1-5, 8-10, 14-20, and 22-24 have been amended to correct certain typographical errors and for consistency, such as by replacing the word “the” with “said.” The amendments are not intended to change the scope of the claims and have not been entered for a reason related to patentability as identified in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 56 USPQ2d 1865 (Fed. Cir. 2000), *rev'd in part*, 535 U.S. 722 (2002).

### **3. New claims 25-36**

New claims 25-36 have been added. The new claims provide additional coverage for air induction systems and so are not being presented for reasons related to patentability as identified in *Festo*.

### **4. Claim Objections**

In the Office Action mailed on August 19, 2004, the Examiner objected to claims 3-4 and 23-24. The Examiner stated that “transition” should be inserted after “bell-mouth.” Applicants have amended claims 3-4 and 23-24 in accord with the Examiner’s request. Therefore, Applicants respectfully submit that the objections to claims 3-4 and 23-24 have been overcome.

## **5. Claim Rejections – 35 U.S.C. § 102(b)**

In the Office Action, the Examiner rejected claims 1, 5, 14-15, and 19 as anticipated by Ironside et al. (U.S. Patent No. 5,261,236). Applicants respectfully traverse these rejections.

### **A. Claims 1 and 5**

Independent claim 1 recites a portion of the clean air channel containing primarily clean air immediately proceeding the plenum. Ironside et al. discloses a system in which the “plenum chamber 16 has an inlet 18 for receiving air from the atmosphere.” Col 4, ll. 47-49. The inlet 18 is not a “clean air channel containing primarily clean air” as the air traveling through the inlet 18 is coming directly from the atmosphere and has not passed through an air filter yet. Hence, Ironside et al. does not disclose a system having a portion of the clean air channel containing primarily clean air immediately proceeding the plenum.

Independent claim 1 further recites a plenum (1) located within the area directly in front of the inlet of the turbocharger that (2) reduces the velocity of the airflow immediately prior to the delivery of the airflow to the turbocharger. On the other hand, Ironside et al. discloses a system in which air exits a plenum chamber 16 and travels the entire length of a duct of constant area prior to reaching a compressor. Additionally, the duct of constant area would not restore pressure head and reduce velocity prior to delivery of the airflow to the compressor. Thus, Applicants respectfully submit that Ironside et al. does not disclose a plenum (1) located within the area directly in front of the inlet of the turbocharger that (2) reduces the velocity of the airflow immediately prior to the delivery of the airflow to the turbocharger. Therefore, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 102(b) be withdrawn.

Dependent claim 5 depends upon claim 1 and should be allowable for similar reasons. Additionally, claim 5 recites a diffuser. The common definition of the term “diffuser” includes “a device for reducing the velocity and increasing the static pressure of a fluid passing through a system.” MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY 323 (10<sup>th</sup> ed. 2002). In other words, a diffuser is “an expansion or area increase intended to reduce velocity in order to recover the pressure head of the flow.” FRANK M. WHITE, FLUID MECHANICS 345 (Anne

Murphy et al. eds., McGraw-Hill, Inc.)(2<sup>nd</sup> ed. 1986). Contrary to what the Examiner suggests on page 3 of the Office Action, the inlet 18 is not a diffuser. The inlet 18 has a decreasing cross-sectional area, which would tend to increase velocity and lower pressure head. *See* Fig. 1. Accordingly, Ironside et al. does not disclose a diffuser.

Claim 5 also recites a cone angle that establishes an expansion rate of the cross-sectional area encompassed within the diffuser. As shown in Figure 1, the inlet 18 of Ironside et al. does not expand, rather it contracts. Hence, Ironside et al. cannot disclose a cone angle that establishes an expansion rate of a cross-sectional area.

**B. Claims 14, 15, and 19**

Independent claim 14 as amended recites a “means for reducing the velocity of said airflow within said clean air channel in an area directly in front of said inlet of said turbocharger.” The above mentioned element is a means-plus-function element and should be interpreted in accordance with 35 U.S.C. § 112, ¶ 6. “Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such [means-plus-function] language when rendering a patentability decision.” MPEP § 2181 (citing *In re Donaldson Co.*, 16 F.3d 1189 (Fed. Cir. 1994)). Ironside et al. does not anticipate the recited means-plus-function element for several reasons.

First, Ironside et al. discloses a system in which the airflow passes through a plenum chamber 16 and subsequently must travel a duct of constant cross-sectional area before reaching a compressor. A duct of constant area is not capable of restoring system pressure head and reducing the velocity of the airflow within a clean air channel. Hence, Ironside et al. does not perform the recited function of reducing the velocity of airflow within the clean air channel in an area directly in front of the inlet of the turbocharger.

Second, the corresponding structure for the “means for reducing the velocity of said airflow within said clean air channel in an area directly in front of said inlet of said turbocharger” limitation is a plenum having a cross-sectional area greater than a cross-sectional area of a portion of the clean air channel immediately upstream of the plenum, as explained in para. 0027 and illustrated by Figures 1 to 7 of this Application. For example, as shown in Figure 1, the plenum of this Application is separate from the air filter. Additionally, the inlet

and the outlet of the plenum of this Application are positioned to redirect the flow of clean air. On the other hand, Ironside et al. discloses a plenum 16 which contains an air cleaning filter. Col. 4, ll. 45-47. Moreover, the inlet and the outlet of the plenum disclosed by Ironside et al. are not positioned to redirect the flow of clean air in a manner similar to the plenum of this Application. Thus, Ironside et al. does not disclose an identical structure of the recited means-plus-function limitation.

Additionally, the corresponding structure, *i.e.*, the plenum, is located downstream of at least a portion of a clean air channel. Hence, the clean air has traveled within at least a portion of a clean air channel, and, as a result, lost system pressure head before reaching the plenum. The plenum subsequently operates as an expansion volume to restore system pressure head and reduce airflow velocity prior to entry of the clean air into a turbocharger. On the other hand, Ironside et al. discloses a duct of constant cross-sectional area, which is not an expansion volume and will not restore any of the lost system pressure head prior the airflow entering a turbocharger. Hence, Ironside et al. necessarily functions in a substantially different way than the claimed invention. Accordingly, Ironside et al. does not disclose an identical or equivalent structure. Therefore, Applicants respectfully request that the rejection of claim 14 under 35 U.S.C. § 102(b) be withdrawn.

Dependent claim 15 depends upon claim 14 and should be allowable for similar reasons.

Dependent claim 19 depends upon claim 14 and should be allowable for similar reasons. Furthermore, claim 19 recites a diffuser and a cone angle that establishes the expansion rate of the cross-sectional area encompassed within the diffuser. As shown in Figure 1, the inlet 18 of Ironside et al. does not expand, rather it contracts. Hence, Ironside et al. does not disclose a diffuser or any expansion rate of the cross-sectional area encompassed therein.

## **6. Claim Rejections – 35 U.S.C. § 103**

In the Office Action, the Examiner rejected claims 2-4, 6-13, 16-18, 19-24 as obvious. Applicants respectfully traverse these rejections.

### **A. Claims 2 and 8**

The Examiner rejected claims 2 and 8 as obvious over Ironside et al. in view of Beckley et al. (U.S. Patent No. 6,158,082). Claims 2 and 8 depend upon independent claim 1. As noted

above in Section 5. A., Ironside et al. does not disclose (1) a system having a portion of the clean air channel immediately proceeding the plenum, or (2) a plenum that reduces the velocity of the airflow immediately prior to the delivery of the airflow to the turbocharger. Beckley et al. also fails to disclose these limitations. Buckley et al. does not disclose a clean air channel directing airflow. Additionally, the plenum of Buckley is “provided to reduce the amount of acoustic energy escaping from the housing inlet” during operation of the blower, not to reduce the velocity of airflow within a clean air channel. *See* Col. 5, ll. 7-14. Thus, even if one were to combine Ironside et al. with Beckley et al., a number of independent claim 1 limitations would still be absent.

#### **B. Claims 16 and 22**

The Examiner rejected claims 16 and 22 as obvious over Ironside et al. in view of Beckley et al. (U.S. Patent No. 6,158,082). Claims 16 and 22 depend upon independent claim 14. As noted above in Section 5. B., Ironside et al. does not disclose the recited function or a corresponding structure for the “means for reducing the velocity of said airflow within said clean air channel in an area directly in front of said inlet of said turbocharger” limitation. Beckley et al. fails to disclose a clean air channel directing airflow. Hence, Beckley et al. also fails to disclose a means for performing the recited function or a corresponding structure of the recited means-plus-function limitation. Thus, even if one were to combine Ironside et al. with Beckley et al., not all of the limitations of independent claim 14 would be present.

Moreover, as the Examiner noted on page 3 of the Office Action, Beckley et al. derives from the “blower tube noise reduction art.” Beckley et al. discloses a portable blower for lawn care. Col. 1, ll. 22-24. The present invention enhances air flow in an air induction system having a turbocharger. Hence, Beckley et al. is from a different field of endeavor.

Additionally, the purpose of Beckley et al. is to provide for “noise reduction during operation of a portable blower by reducing the noise or acoustic energy escaping from the housing outlet and the blower tube.” *See* Abstract. The problems to be solved with the present invention include overcoming packaging and manufacturing constraints and restoring pressure head in an air induction system. Thus, Beckley et al. is not reasonably pertinent to the particular problems sought to be solved by the present invention. Therefore, Applicants

respectfully submit that Beckley et al. derives from a non-analogous art and one skilled in the art would not look to combine Ironside et al. with Beckley et al. See *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

**C. Claims 3-4, 9-10, 13, 17-18, and 23-24**

The Examiner rejected claims 3-4, 9-10, 13, 17-18, and 23-24 as obvious over Ironside et al. in view of Beckley et al. and in further view of design choice. Claims 3-4, 9-10, and 13 depend upon independent claim 1 and claims 17-18 and 23-24 depend upon independent claim 14. As noted above in Section 5, even if one were to combine Ironside et al. with Beckley et al., limitations of both independent claims 1 and 14 would still be absent.

Additionally, the Examiner stated on pages 4-5 of the Office Action that “[o]ne having an ordinary skill in the turbocharged internal combustion engine art, would have found the radius of the bell-mouth transition being approximately 20%, and from approximately 3 to approximately 30% of the effective diameter of the inlet of the turbocharger; and said plenum has a cross-sectional area lowering flow velocity through said plenum to less than 75 m/s, as a matter of design choice.” However, neither Ironside et al. nor Beckley et al. explicitly disclose any of these claim limitations. Accordingly, even if one skilled in the art were to combine Ironside et al. with Beckley et al., the additional limitations of claims 3-4, 9-10, 13, 17-18, and 23-24 would still be absent.

The Examiner also stated on page 5 of the Office Action that “there is nothing in the record, which establishes that the claimed pressure ratio of the compressor, presents a novel [or] unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).” However, as the Federal Circuit noted, “[t]o require [an applicant] to include evidence and arguments in the specification regarding whether [a limitation] was a matter of ‘design choice’ would be to require patent applicants to divine the rejections the PTO will proffer when patent applications are filed.” *In re Chu*, 66 F.3d 292, 298 (Fed. Cir. 1995)(distinguishing *In re Kuhle*, 526 F.2d. 553). Furthermore, the Federal Circuit has stated that “evidence of a suggestion, teaching, or motivation to combine” “must be clear and particular.” *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). The Examiner has not explained what specific understanding or technical principle would have suggested the combination of Ironside et al. with Beckley et al.

Therefore, Applicants respectfully submit that the Examiner's design choice rejections have been overcome.

**D. Claims 6-7, 11-12, and 20-21**

The Examiner rejected claims 6-7, 11-12, and 20-21 as obvious over Ironside et al. in view of Beckley et al. and in further view of design choice. Claims 6-7, 11-12 depend upon independent claim 1 and claims 20-21 depend upon independent claim 14. As noted above in Section 5, even if one were to combine Ironside et al. with Beckley et al., limitations of both independent claims 1 and 14 would still be absent.

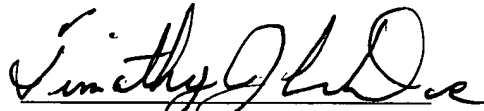
The Examiner on page 5 of the Office Action, states that “[o]ne having an ordinary skill in the turbocharged internal combustion engine art, would have found the cone angle being approximately 12 degrees, and in the range of approximately 4 to approximately 16 degrees, as a matter of design choice, depending on the engine requirements.” However, neither Ironside et al. nor Beckley et al. disclose a diffuser or a diffuser having a cone angle. Accordingly, the combination of Ironside et al. with Beckley et al., even if such a combination could be properly made, does not yield the additional limitations of claims 6-7, 11-12, and 20-21.

Moreover, the Examiner also has not explained what specific understanding or technical principle would have suggested the combination of Ironside et al. with Beckley et al. *See, e.g., In re Dembiczak*, 175 F.3d at 999. Therefore, Applicants respectfully submit that the Examiner's design choice rejections have been overcome.

### SUMMARY

Applicants respectfully submit that all of the pending claims are in condition for allowance and seek early allowance thereof. If for any reason the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, the Examiner is respectfully requested to call the undersigned at (312) 321-4277.

Respectfully submitted,



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